



# **IEEE 2022 CIC/COGMI/TPS JOINT CONFERENCES**

## **VIRTUAL CONFERENCE DEC 14-16**

### **CONFERENCE PROGRAM**

Version  
Dec 15, 2022





# Useful Resources

**Slack Workspace** – TBD

**Conference Website**

- CIC: <http://www.sis.pitt.edu/lersais/conference/cic/2022/>
- TPS: <http://www.sis.pitt.edu/lersais/conference/tps/2022/>
- CogMI: <http://www.sis.pitt.edu/lersais/conference/cogmi/2022/>

**Conference Program with Zoom links** –  
TBD

**Conference App** – Select IEEE CIC TPS CogMI 2022

BARCODE HERE

**Android** -  
**iOS** -



# IEEE 2022 CIC/CogMI/TPS Joint Conferences

## Overview Day 1: Wednesday, Dec. 14, 2022

8:00am-8:30am	<b>Opening</b> <a href="#">Zoom Link</a> (PC Chairs)		
8:30am-10:30am	<b>CIC Vision 1</b> <a href="#">Zoom Link</a> (Australia) Zoom Link Session Chair <b>Balaji Palanisamy, University of Pittsburgh, USA</b>	<b>CogMI Vision 1</b> <a href="#">Zoom Link</a> (Asia) Session Chair <b>Stacey Truex, Denison University, USA</b>	<b>TPS Vision 1</b> <a href="#">Zoom Link</a> Session Chair <b>James Joshi, University of Pittsburgh, USA</b>
Break			
10:40am-11:40am	<b>Keynote 1</b> <a href="#">Zoom Link</a> <b>Web3 and Decentralized AI</b> <b>Ramesh Raskar, MIT Media Lab, USA</b> Session Chair: <b>Murat Kantarcioglu, University of Texas at Dallas, USA</b>		
Lunch Break			
12:10 pm–1:40pm	<b>Panel 1</b> <a href="#">Zoom Link</a> <b>Bias in Evolving Collaborative Computing</b> Panelists <b>R. Stuart Geiger, UCSD, USA</b> <b>James Joshi, NSF &amp; University of Pittsburgh, USA</b> <b>Fred Morstatter, USC Information Sciences Institute , USA</b> <b>Hanghang Tong, UIUC, USA</b> Panel Moderator <b>Calton Pu, Georgia Institute of Technology, USA</b>		
Break			
1:50pm–2:50pm	<b>Keynote 2</b> <a href="#">Zoom Link</a> <b>Automating Security Policy Configuration and Administration – Benefits, Challenges and Approaches</b> <b>Vijay Atluri, Rutgers University, USA</b> Session Chair: <b>Indrajit Ray, Colorado State University, USA</b>		
Break			
3:00pm-5:00pm	<b>CIC Research 1</b> <a href="#">Zoom Link</a> Session Chair <b>Hajar Homayouni, San Diego State University, USA</b>	<b>TPS Research Session 1</b> <a href="#">Zoom Link</a> Session Chair <b>Dan Lin</b>	<b>CogMI Research Session 1</b> <a href="#">Zoom Link</a> Session Chair <b>Keke Chen</b>
6:30 pm – 8:00 pm	<b>Experiences in Academia and Research</b> <a href="#">Zoom Link</a> Panelists <b>Abhilasha Bhargav-Spantzel, Microsoft Security Partner Architect, Ex-Intel Principal Engineer</b> <b>Gaowen Liu, Cisco Research</b> <b>Karthik Shanmugam, IBM TJW, Google Research India</b> <b>Dave Zage, Intel Product Security Architect</b> Moderator: <b>Abhilasha Bhargav-Spantzel</b>		



# IEEE 2022 CIC/CogMI/TPS Joint Conferences

## Overview Day 2: Thursday, Dec. 15, 2022

8:30am-10:30am	<b>TPS Research Session 2</b> <a href="#">Zoom Link</a> <i>Session Chair</i> <b>Emre Gursoy</b>	<b>CogMI Research Session 2</b> <a href="#">Zoom Link</a> <i>Session Chair</i> <b>Yudong Tao</b>	<b>CIC Research 2</b> <a href="#">Zoom Link</a> <i>Session Chair</i> <b>Stefano Sebastio,</b> <i>Collins Aerospace</i>	
Break				
10:40am-11:40am	<b>Keynote 3</b> <a href="#">Zoom Link</a> <b>Data Valuation in Large Scale Data and Machine Learning Model Markets: Models, Fairness, and Scalability</b> <b>Jian Pei, Duke University, USA</b> Session Chair: <b>Karl Aberer, EPFL, Switzerland</b>			
Break				
11:45 pm-1:15 pm	<b>Panel 2</b> <a href="#">Zoom Link</a> <b>Securing the Election Infrastructure: Challenges and Opportunities</b> Panelists <b>Josh Benaloh, Microsoft Research, USA</b> <b>Matt Bernhard, VotingWorks, USA</b> <b>Chad Houck, Chief Deputy Secretary of State, USA</b> <b>Mark Lindeman, Verified Voting, USA</b> <b>Arielle Schneider, Virginia Department of Elections, USA</b> <b>Philip B. Stark, University of California, Berkeley, USA</b> Panel Moderator/Session Chair <b>Massimiliano Albanese, George Mason University, USA</b>			
Break				
1:20 pm - 2:20 pm	<b>Keynote 4</b> <a href="#">Zoom Link</a> <b>Achieving Career Success in Computer Science for Women and Underrepresented Minority Communities</b> <b>Bhavani Thuraisingham, The University of Texas at Dallas, USA</b> Session Chair: <b>Indrakshi Ray, Colorado State University, USA</b>			
Break				
2:30 pm -4:30 pm	<b>TPS Research 3</b> <a href="#">Zoom Link</a> <i>Session Chair</i> <b>Sharif Abuadbbba</b>	<b>CIC Vision 2</b> <a href="#">Zoom Link</a> <i>Session Chair</i> <b>Kimberly Hemmings-Jarrett, Penn State Abington, USA</b>	<b>CogMI Vision 2</b> <a href="#">Zoom Link</a> <i>Session Chair</i> <b>Julian Jarret</b>	<b>TPS Vision 2</b> <a href="#">Zoom Link</a> <i>Session Chair</i> <b>Balaji Palanisamy,</b> <i>University of Pittsburgh, USA</i>
Break				
6:30 pm –8:00 pm	<b>Startups, Innovation and Entrepreneurship</b> <a href="#">Zoom Link</a> Panelists <b>Debabrata Dash, CipherCloud</b> <b>Pei-Yun Sabrina Hsueh, Bayesian Health startup, IBM TJW</b> <b>Mummoorthy Murugesan, Normalyze startup founding engineering leader</b> Moderator: <b>Mummoorthy Murugesan</b>			



# IEEE 2022 CIC/CogMI/TPS Joint Conferences

## Overview Day 3: Friday, Dec. 16, 2022

8:30am-10:30am	TPS Research 4 <a href="#">Zoom Link</a> Session Chair Ram Dantu	CogMI Research 3 <a href="#">Zoom Link</a> Session Chair Julian Jarret	CIC Vision 3 <a href="#">Zoom Link</a> Session Chair James Joshi, University of Pittsburgh, USA	8:30 am – 9:30 am	TPS Special Session-AI Security <a href="#">Zoom Link</a> Session Chair Danda Rawat
				9:30 am – 10:30 am	TPS Special Session- Blockchain <a href="#">Zoom Link</a> Session Chair Jaideep Vaidya
Break					
10:40 am-11:40 am	Keynote 5 <a href="#">Zoom Link</a> The Persistent Problem of Software Insecurity Elisa Bertino, Purdue University, USA Session Chair: Ling Liu, Georgia Institute of Technology, USA				
Break					
12:10pm-1:10pm	Keynote 6 <a href="#">Zoom Link</a> Using AI to understand molecular patterns in human health and disease Guruduth Banavar, Viome, USA Session Chair: Mei-Ling Shyu, University of Missouri-Kansas City, USA				
Break					
1:20 pm-3:20 pm	TPS Research Session 5 <a href="#">Zoom Link</a> Session Chair Liyue Fan	CogMI Vision 3 <a href="#">Zoom Link</a> (EU) Session Chair Ricardo Baeza- Yates, IEAI at Northeastern University, USA Universitat Pompeu Fabra, Spain Universidad de Chile, Chile	TPS Research Session 6 <a href="#">Zoom Link</a> Session Chair Ravi Mukkamala		
Break					
3:30pm – 5:00pm	Panel 3 <a href="#">Zoom Link</a> Robust and Fair AI Panelists Emily Black, Stanford University, USA Thomas Dietterich, Oregon State University, USA Xia Hu, Rice University, USA Kush Varshney, IBM Panel Moderator: Aidong Zhang, University of Virginia, USA				

Note: all schedules are located in **US EST, GMT-5**





5:00 pm – 5:30 pm	<b>Best Paper Awards and Closing Remarks</b> <a href="#">Zoom Link</a>
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## IEEE 2022 CIC/CogMI/TPS Joint Conferences

Day 1: Wednesday, Dec. 14, 2022

### Welcome and Opening Remarks

8:00 am – 8:30 am

Zoom Link: <https://us06web.zoom.us/j/82166393492?pwd=M1J6eIBGZEhrVVp6WTBTUDlwZG1wUT09>

All Chairs

### CIC Vision Session 1:

8:30 am – 10:30 am

Zoom Link: <https://us06web.zoom.us/j/81178558763?pwd=Z0thNVE3b2FsNkhIWGhqWDFITnBTZz09>

Session Chair: **Balaji Palanisamy, University of Pittsburgh, USA**

- **A Survey of Mobile Edge Computing for the Metaverse: Architectures, Applications, and Challenges**  
Yitong Wang (Nanyang Technological University, Singapore) and Jun Zhao (Nanyang Technological University, Singapore)
- **Next-Generation Federated Learning for Edge Computing: An Overview**  
Jianyi Zhang (Duke University, USA), Zhixu Du (Duke University, USA), Jingwei Sun (Duke University, USA), Ang Li (Duke University, USA), Minxue Tang (Duke University, USA), Hai Li (Duke University, USA) and Yiran Chen (Duke University, USA)
- **Leveraging Synergies Between AI and Networking to Build Next Generation Edge Networks**  
Sen Lin (The Ohio State University, USA), Ming Shi (The Ohio State University, USA), Anish Arora (The Ohio State University, USA), Raef Bassily (The Ohio State University, USA), Elisa Bertino (Purdue University, USA), Constantine Caramanis (University of Texas, Austin, USA), Kaushik Chowdhury (Northeastern University, USA), Eylem Ekici (The Ohio State University, USA), Atilla Eryilmaz (The Ohio State University, USA), Stratis Ioannidis (Northeastern University, USA), Nan Jiang (University of Illinois, Urbana-Champaign, USA), Gauri Joshi (Carnegie Mellon University, USA), Jim Kurose (University of Massachusetts, Amherst, USA), Yingbin Liang, Zhiqiang Lin, Jia Liu (The Ohio State University, USA), Mingyan Liu (University of Michigan, USA), Tommaso Melodia (Northeastern University, USA), Aryan Mokhtari (University of Texas, Austin, USA), Rob Nowak (University of Wisconsin, Madison, USA), Sewoong Oh (University of Washington, USA), Sridhar Parthasarathy (The Ohio State University, USA), Chunyi Peng (Purdue University, USA), Hulya Seferoglu (University of Illinois, Chicago, USA), Ness Shroff (The Ohio State University, USA), Sanjay Shakkottai (University of Texas, Austin, USA), Kannan Srinivasan (The Ohio State University, USA), Ameet Talwalkar (Carnegie Mellon University, USA), Aylin Yener (The Ohio State University, USA) and Lei Ying (University of Michigan, USA)





## CogMI Vision Session 1:

8:30 am – 10:30 am

Zoom Link: <https://us06web.zoom.us/j/81494148545?pwd=dmpTbndnb0svTWkxV2N3aklpdlMydz09>

Session Chair: **Stacey Truex, Denison University, USA**

- **A Serverless Computing Fabric for Edge & Cloud**  
Stefan Nastic (TU Wien, Austria), Schahram Dustdar (TU Wien, Austria), Philipp Raith (TU Wien, Austria), Alireza Furutanpey (TU Wien, Austria) and Thomas Pusztai (TU Wien, Austria)
- **Evaluating the Privacy Exposure of Interpretable Global Explainers**  
Francesca Naretto (Scuola Normale Superiore, Italy), Anna Monreale (University of Pisa, Italy) and Fosca Giannotti (ISTI-CNR, Italy)
- **Thoughts on Non-IID Data Impact in Healthcare with Federated Learning Medical Blockchain**  
Zon-Yin Shae (Asia University, Taiwan), Kun-Yi Chen (Asia University, Taiwan), Chi-Yu Chang (Asia University, Taiwan), Yuan-Yu Tsai (Asia University, Taiwan), Che-Yi Chou (Asia University, Taiwan), William I. Baskett (University of Missouri, Columbia, USA), Chi-Ren Shyu (University of Missouri, Columbia, USA) and Jeffrey J.P. Tsai (Asia University, Taiwan)

## TPS Vision Session 1:

8:30 am – 10:30 am

Zoom Link: <https://us06web.zoom.us/j/82224192504?pwd=bWFrRmwyN3RROXhNcmJQd1lPTHZHZz09>

Session Chair: **James Joshi, University of Pittsburgh, USA**

- **Privacy and Security issues for Human Digital Twins**  
Giorgia Sirigu (University of Insubria, Italy), Barbara Carminati (University of Insubria, Italy) and Elena Ferrari (University of Insubria, Italy)
- **A Universal Deduplication Architecture for Secure and Efficient Cloud Storage**  
Kevin Saric (Queensland University of Technology, Australia), Gowri Ramachandran (Queensland University of Technology, Australia), Shantanu Pal (Deakin University, Australia), Raja Jurdak (Queensland University of Technology, Australia) and Surya Nepal (CSIRO Data61, Australia)
- **Accountable AI for Healthcare IoT Systems**  
Prachi Bagave (Delft University of Technology, Netherlands), Marcus Westberg (Delft University of Technology, Netherlands), Roel Dobbe (Delft University of Technology, Netherlands), Marijn Janssen (Delft University of Technology, Netherlands) and Aaron Yi Ding (Delft University of Technology, Netherlands)
- **Distributed Cyber-infrastructures and Artificial Intelligence in Hybrid Post-Quantum Era**  
Attila A Yavuz (University of South Florida, USA), Saif Nouma (University of South Florida, USA), Thang Hoang (Virginia Tech, USA), Duncan Earl (Qubitekk Inc., USA) and Scott Packard (Qubitekk Inc., USA)





## Coffee Break (10 min)

### Keynote 1

10:40am–11:40am

Zoom Link: <https://us06web.zoom.us/j/85921257096?pwd=UVp1UG5zN0xnMGowK2JleHN3OHhtZz09>

Session Chair: **Murat Kantarcioglu, University of Texas at Dallas, USA**

### Web3 and Decentralized AI

**Ramesh Raskar**

*Associate Professor, MIT Media Lab, USA*

## Lunch Break (30 min)

### Panel 1

12:10pm–1:40pm

Zoom Link: <https://us06web.zoom.us/j/88325419581?pwd=MFNROHJIMHBJR0ZrNGJyK3lwcUZnUT09>

### Bias in Evolving Collaborative Computing

Moderator: **Calton Pu, Georgia Institute of Technology, USA**

#### Panelists

- **R. Stuart Geiger**, UCSD, USA
- **James Joshi**, NSF & University of Pittsburgh, USA
- **Fred Morstatter**, USC Information Sciences Institute, USA
- **Hanghang Tong**, UIUC, USA

## Coffee Break (10 min)

### Keynote 2

1:50pm–2:50pm

Zoom Link: <https://us06web.zoom.us/j/85847388848?pwd=SIBZTkJPZlVwNmhkdlhMUE0cC3Vldz09>

Session Chair: **Indrajit Ray, Colorado State University, USA**

### Automating Security Policy Configuration and Administration – Benefits, Challenges and Approaches

**Vijay Atluri**

*Professor, Rutgers University, USA*





## Coffee Break (10 min)

### CIC Research Session 1:

3:00 pm – 5:00 pm

Zoom Link: <https://us06web.zoom.us/j/83408940974?pwd=VnRBK0Zqci8yMkR0TzlxVWx6NDBhdz09>

Session Chair: [Hajar Homayouni, San Diego State University, USA](#)

- **Attributes Aware Relationship-based Access Control for Smart IoT Systems**  
Lopamudra Praharaj (Tennessee Tech University, US), Safwa Ameer (University of Texas at San Antonio, US), Maanak Gupta (Tennessee Tech University, US) and Ravi Sandhu (University of Texas at San Antonio, US)
- **Exploring Generalizability of Fine-Tuned Models for Fake News Detection**  
Abhijit Suprem (Georgia Institute of Technology, US), Sanjyot Vaidya (Georgia Institute of Technology, US) and Calton Pu (Georgia Institute of Technology, US)
- **DP-ADA: Differentially Private Adversarial Domain Adaptation for Training Deep Learning based Network Intrusion Detection Systems**  
Ankush Singla (Purdue University, US) and Elisa Bertino (Purdue University, US)
- **A Temporal Anomaly Detection System for Vehicles utilizing Functional Working Groups and Sensor Channels**  
Subash Neupane (Mississippi State University, US), Ivan Fernandez (Mississippi State University, US), Wilson Patterson (Mississippi State University, US), Sudip Mittal (Mississippi State University, US) and Shahram Rahimi (Mississippi State University, US)

### TPS Research Session 1:


3:00pm-5:00pm

Zoom Link: <https://us06web.zoom.us/j/82396019438?pwd=Y0tCV1F1Vy9oTGRFMXVmV0xpYldiQT09>

Session Chair: [Dan Lin](#)

- **Maintaining Review Credibility Using NLP, Reputation and Blockchain**  
Zachary Zaccagni (University of North Texas, USA), Ram Dantu (University of North Texas, USA) and Kirill Morozov (University of North Texas, USA)
- **MnemoSys: A Conditional Probability Estimation Protocol for Blockchain Audited Reputation Management**  
Daniel Rouhana (Washington State University, USA), Peyton Lundquist (Boise State University, USA), Timothy Andersen (Boise State University, USA) and Gaby G. Dagher (Boise State University, USA)
- **Managing Reputation Scores in a Blockchain-based Decentralized Marketplace**





Ravi Mukkamala (Old Dominion University, USA) , Stephan Olariu (Old Dominion University, USA), Meshari Aljohani (Old Dominion University, USA) and Sandeep Kalari (Old Dominion University, USA)

- **Efficient Blockchain Enabled Attribute-based Access Control as a Service**  
Ritik Kumar (Indian Institute of Technology Kharagpur, India), Balaji Palanisamy (University of Pittsburgh, USA) and Shamik Sural (Indian Institute of Technology Kharagpur, India)

## CogMI Research Session 1:

3:00 pm – 5:00 pm

Zoom Link: <https://us06web.zoom.us/j/81362969623?pwd=cFFnYVlyRzdIZGZrT0dZeHVURjVoUT09>

Session Chair: **Keke Chen**

- **Constructive Interpretability with CoLabel: Corroborative Integration, Complementary Features, and Collaborative Learning**  
Abhijit Suprem (Georgia Institute of Technology, USA), Sanjyot Vaidya (Georgia Institute of Technology, USA), Purva Singh (Georgia Institute of Technology, USA), Suma Cherkadi (Georgia Institute of Technology, USA), João Eduardo Ferreira (Georgia Institute of Technology, USA) and Calton Pu (Georgia Institute of Technology, USA)
- **New Heuristic Methods for Protein Model Quality Assessment via Two-Stage Machine Learning and Hierarchical Ensemble**  
Junlin Wang (University of Missouri Columbia, USA), Wenbo Wang (University of Missouri Columbia, USA), Yi Shang (University of Missouri Columbia, USA) and Dong Xu (University of Missouri Columbia, USA)
- **A Methodology for Energy Usage Prediction in Long-Lasting Abnormal Events**  
Gabriele Maurina (Colorado State University, USA), Hajar Homayouni (San Diego State University, USA), Sudipto Ghosh (Colorado State University, USA), Indrakshi Ray (Colorado State University, USA) and Gerald P. Duggan (Colorado State University, USA)
- **Measuring Fairness of Deep Neural Network Classifiers for Face Biometrics**  
Kenneth Lai (University of Calgary, USA), Vlad Shmerko (University of Calgary, USA) and Svetlana Yanushkevich (University of Calgary, USA)

## Evening Session 1: Experiences in Academia and Research:

6:30 pm – 8:00 pm

Zoom Link: <https://us06web.zoom.us/j/81473538195?pwd=Rm9HMWVhyb24wV1M4YU9WaVB0NkU5Zz09>

Moderator: **Abhilasha Bhargav-Spantzel**


Panelists

- **Gaowen Liu**, Cisco Research
- **Karthik Shanmugam**, IBM TJW, Google Research India
- **Dave Zage**, Intel Product Security Architect









## IEEE 2022 CIC/CogMI/TPS Joint Conferences

### Day 2: Thursday, Dec. 15, 2022

#### TPS Research Session 2:

8:30 am-10:30am

Zoom Link: <https://us06web.zoom.us/j/85848328202?pwd=RytiQ3h5TlE5RE5rTGM1TXpXdc8wQT09>

Session Chair: **Emre Gursoy**

- **Money Talks: Detection of Disposable Phishing Websites by Analyzing Its Building Costs**  
Daiki Ito (Deloitte Tohmatsu Cyber LLC, Japan), Yuta Takata (Deloitte Tohmatsu Cyber LLC, Japan) and Masaki Kamizono (Deloitte Tohmatsu Cyber LLC, Japan)
- **Investigating Organizational Factors Associated with GDPR Noncompliance using Privacy Policies: A Machine Learning Approach**  
Abdel-Jaouad Aberkane (Ghent University, Belgium), Seppe Vanden Broucke (Ghent University, Belgium) and Geert Poels (Ghent University, Belgium)
- **Enabling Location Based Services with Privacy and Integrity Protection in Untrusted Environments through Blockchain and Secure Computation**  
Michele Amoretti (University of Parma, Italy), Alexandru Budianu (ESA/ESTEC, Netherlands), Gianluca Caparra (ESA/ESTEC, Netherlands), Felice D'Agruma, Davide Ferrari, Gabriele Penzotti, Luca Veltri and Francesco Zanichelli (University of Parma, Italy)
- **A Method of Constructing Malware Classification Dataset Using Clustering**  
Woo-Jin Joe (Chungnam National University, South Korea) and Hyong-Shik Kim (Chungnam National University, South Korea)

#### CogMI Research Session 2:

8:30 am-10:30 am

Zoom Link: <https://us06web.zoom.us/j/88910124490?pwd=Q2swYUVvb1hMOXZWS2p4NncvMERUUT09>

Session Chair: **Yudong Tao**

- **A Multilingual Virtual Guide for Self-Attachment Technique**  
Alicia Jiayun Law (Imperial College London, UK), Ruoyu Hu (Imperial College London, UK), Lisa Alazraki (Imperial College London, UK), Abbas Edalat (Imperial College London, UK), Anandha Gopalan (Imperial College London, UK) and Neophytos Polydorou (Imperial College London, UK)
- **Development of New Aerial Image Datasets and Deep Learning Methods for Waterfowl Detection and Classification**  
Yang Zhang (University of Missouri - Columbia, USA), Shiqi Wang (University of Missouri - Columbia, USA), Zhenduo Zhai (University of Missouri - Columbia, USA), Yi Shang (University of Missouri - Columbia, USA), Reid Viegut (University of Missouri - Columbia, USA), Elisabeth Webb (University of Missouri - Columbia, USA), Andrew Raedeke (Missouri Department of Conservation Columbia, Missouri, USA) and Joel Sartwell (Missouri Department of Conservation Columbia, Missouri, USA)



- **Performance Evaluation of Text Augmentation Methods with BERT on Small-sized, Imbalanced Datasets**  
Lingshu Hu (Washington and Lee University, USA), Can Li (University of Missouri-Columbia, USA), Wenbo Wang (University of Missouri-Columbia, USA), Bin Pang (University of Missouri-Columbia, USA) and Yi Shang (University of Missouri-Columbia, USA)
- **Adversarial Promotion for Video based Recommender Systems**  
Demarcus Edwards (Howard University, USA), Danda Rawat (Howard University, USA) and Brian Sadler (Army Research Labs, USA)

## CIC Research Session 2:

8:30 am-10:30 am

Zoom Link: <https://us06web.zoom.us/j/83385834264?pwd=SiRjM3kwTDk1NkRvcVJxaWpEWERZUT09>

Session Chair: **Stefano Sebastio, Collins Aerospace**

- **Characterization of Emotional Contagion in Collaborative Decision Support Systems**  
Arnab Sircar (University of Pennsylvania, US) and Mark Klein (Massachusetts Institute of Technology, US)
- **Reproducible Workflows for Exploring and Modeling EMA Data**  
Ching-Yun Yu (University of Missouri, US), Yi Shang (University of Missouri, US) and Timothy Trull (University of Missouri, US)
- **SciLedger: A Blockchain-based Scientific Workflow Provenance and Data Sharing Platform**  
Reagan Hoopes (Utah State University, US), Hamilton Hardy (Utah State University, US), Min Long (Boise State University, US) and Gaby G. Dagher (Boise State University, US)
- **A Comparative Approach to Threshold Optimization for Classifying Imbalanced Data**  
John Hancock (Florida Atlantic University, US), Justin Johnson (Florida Atlantic University, US) and Taghi Khoshgoftaar (Florida Atlantic University, US)

## Coffee Break (10 min)

## Keynote 3

10:40am-11:40am


Zoom Link: <https://us06web.zoom.us/j/85712827126?pwd=eVg3c016QVF3OVlwQS9zdWZZclZ6QT09>

Session Chair: **Karl Aberer, EPFL, Switzerland**

## Data Valuation in Large Scale Data and Machine Learning Model Markets: Models, Fairness, and Scalability

Jian Pei





*Professor, Duke University, USA*

## Coffee Break (5 min)

### Panel 2

11:45 am–1:15 pm

Zoom Link: <https://us06web.zoom.us/j/86051657677?pwd=b0t1RXNBZ1kvV05GNFg5dIFCcW9sZz09>

### Securing the Election Infrastructure: Challenges and Opportunities

Moderator: **Massimiliano Albanese, George Mason University, USA**

Panelists

- **Matt Bernhard**, VotingWorks, USA
- **Chad Houck**, Chief Deputy Secretary of State, USA
- **Mark Lindeman**, Verified Voting, USA
- **Arielle Schneider**, Virginia Department of Elections, USA
- **Philip B. Stark**, University of California, Berkeley, USA

## Coffee Break (5 min)

### Keynote 4

1:20 pm–2:20 pm

Zoom Link: <https://us06web.zoom.us/j/85037506014?pwd=OUlwZmwrTnR6c1lzU05IMEFVUUVQdz09>

Session Chair: **Indrakshi Ray, Colorado State University, USA**

### Achieving Career Success in Computer Science for Women and Underrepresented Minority

#### Communities

**Bhavani Thuraisingham**

*Founders Chair Professor, The University of Texas at Dallas, USA*





## TPS Research Session 3:

2:30 pm – 4:30 pm

Zoom Link: <https://us06web.zoom.us/j/87440032960?pwd=cEtVaGozb2pENGLyMG9YRkF0Vlcvdz09>

Session Chair: [Sharif Abuadbbba](#)

- **Detecting Cloud-Based Phishing Attacks by Combining Deep Learning Models**  
Birendra Jha (Eydlle Inc., USA), Medha Atre (Eydlle Inc., USA) and Ashwini Rao (Eydlle Inc., USA)
- **ML-FEED: Machine Learning Framework for Efficient Exploit Detection**  
Tanujay Saha (Princeton University, USA), Tamjid Al-Rahat (University of California, Los Angeles, USA), Najwa Aaraj (Technology Innovation Institute, UAE), Yuan Tian (University of California, Los Angeles, USA) and Niraj Jha (Princeton University, USA)
- **Weaponizing IoT Sensors: When Table Choice Poses a Security Vulnerability**  
Gustavo Casqueiro (Texas Tech University, USA), Sayed Erfan Arefin (Texas Tech University, USA), Tasnia Ashrafi Heya (Texas Tech University, USA), Abdul Serwadda (Texas Tech University, USA) and Hassan Wasswa (Texas Tech University, USA)
- **Visualization and Identification of Anomalies in Lower Dimensional Spaces: an Empirical Study**  
Vivek Vaidya (East Brunswick High School, USA) and Jaideep Vaidya (Rutgers University, USA)

## CIC Vision Session 2:


2:30 pm – 4:30 pm

Zoom Link: <https://us06web.zoom.us/j/89516979881?pwd=THNpQkVvcFNocUFLZ3hkdWJQYTBKZz09>

Session Chair: [Kimberly Hemmings-Jarrett, Penn State Abington, USA](#)

- **The Social Emotional Web**  
Kristina Lerman (University of Southern California, USA)
- **Network Sheaf Models for Social Information Dynamics**  
Robert Ghrist (University of Pennsylvania, USA)
- **Entropy-Based Characterization of Influence Pathways in Traditional and Social Media**  
Ozlem Garibay (University of Central Florida, USA), Niloofar Yousefi (University of Central Florida, USA), Kevin Aslett (University of Central Florida, USA), Jacopo Baggio (University of Central Florida, USA), Erik Hemberg (Massachusetts Institute of Technology, USA), Chathura Jayalath (University of Central Florida, USA), Alexander Mantzaris (University of Central Florida, USA), Bruce Miller (University of Central Florida, USA), Una-May O'Reilly (Massachusetts Institute of Technology, USA), William Rand (North Carolina State University, USA), Chathurani Senevirathna (University of Central Florida, USA) and Ivan Garibay (University of Central Florida, USA)



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- **An Imperative to Assess Socio-Technical Impact of Algorithms in Online Spaces and Wrestling Responsibility from Technology Companies**  
Cody Buntain (University of Maryland, College Park, USA)

## CogMI Vision Session 2:

2:30pm-4:30pm

Zoom Link: <https://us06web.zoom.us/j/86539379810?pwd=YkhUM0x1blg1dnltMEgxVTRUejdCdz09>

Session Chair: [Julian Jarret](#)

- **Inference for Trustworthy Machine Intelligence: Challenges and Solutions**  
Dinesh Verma (IBM, USA)
- **Artificial Reasoning in the Streetscape**  
Adrienne Raglin (Army Research Lab, USA), Sharon Sputz (Columbia University, USA) and Andrew Smyth (Columbia University, USA)
- **Human vs. Artificial Intelligence**  
Ricardo Baeza-Yates (IEAI at Northeastern University, USA, Universitat Pompeu Fabra, Spain, Universidad de Chile, Chile) and Pablo Villoslada (Stanford University, USA)
- **Artificial Intelligence Meets Tactical Autonomy: Challenges and Perspectives**  
Danda B. Rawat

## TPS Vision Session 2:

2:30pm-4:30pm

Zoom Link: <https://us06web.zoom.us/j/84810834206?pwd=enhRSFI4NzVqMUNYYUFSQ1pzcnFBUT09>

Session Chair: [Balaji Palanisamy, University of Pittsburgh, USA](#)

- **Auditing Metaverse Requires Multimodal Deep Learning**  
Kritagya Upadhyay (University of North Texas, US), Ram Dantu (University of North Texas, US), Yanyan He (University of North Texas, US), Syed Badruddoja and Abiola Salau (University of North Texas, US)
- **Developing Self-evolving Deepfake Detectors Against AI Attacks**  
Ian Miller (Vanderbilt University, USA) and Dan Lin (Vanderbilt University, USA)
- **Privacy Challenges and Solutions for Image Data Sharing**  
Liyue Fan (University of North Carolina at Charlotte, USA)





## Coffee Break (120 min)

## Evening Session 2: Startups, Innovation and Entrepreneurship:

6:30 pm – 8:00 pm

Zoom Link: <https://us06web.zoom.us/j/85037023702?pwd=bWxrNVpDcnNGemE5ZG5KajVGMctTQT09>

Moderator: **Mummoorthy Murugesan**

Panelists:

- **Debabrata Dash**, CipherCloud
- **Pei-Yun Sabrina Hsueh**, Bayesian Health startup, IBM TJW

## IEEE 2022 CIC/CogMI/TPS Joint Conferences

**Day 3: Friday, Dec. 16, 2022**

## TPS Research Session 4:

8:30 am – 10:30 am

Zoom Link: <https://us06web.zoom.us/j/82321561169?pwd=V3lvcnFld3J5cXhYUXVlVmFqMERldz09>

Session Chair: **Ram Dantu**

- **Resilience of Wireless Ad Hoc Federated Learning against Model Poisoning Att**  
Naoya Tezuka (The University of Tokyo, Japan), Hideya Ochiai (The University of Tokyo, Japan), Yuwei Sun (The University of Tokyo, Japan) and Hiroshi Esaki (The University of Tokyo, Japan)
- **Beta Poisoning Attacks Against Machine Learning Models: Extensions, Limitations and Defenses**  
Atakan Kara (Koc University, Turkey), Nursena Koprucu (Koc University, Turkey) and M. Emre Gursoy (Koc University, Turkey)
- **Enhanced Scanning in SDN Networks and its Detection using Machine Learning**  
Abdullah Alqahtani (University of Sheffield, UK) and John Clark (University of Sheffield, UK)
- **Defending Against Targeted Poisoning Attacks in Federated Learning**  
Pinar Erbil (Koc University, Turkey) and M. Emre Gursoy (Koc University, Turkey)

## CogMI Research Session 3:

8:30am-10:30am

Zoom Link: <https://us06web.zoom.us/j/86037804249?pwd=c0gzVzJkMENVRnQ1NU9raHRQb3psdz09>





Session Chair: **Julian Jarret**

- **An approach to dealing with concept drift in personalized learning systems**  
Bander Allogmany (Bowie State University, USA) and Darsana Josyula (Bowie State University, USA)
- **Deep Learning Methods for Tree Detection and Classification**  
Yang Zhang (University of Missouri - Columbia, USA), Yizhen Wang (University of Missouri - Columbia, USA), Zhicheng Tang (University of Missouri - Columbia, USA), Zhenduo Zhai (University of Missouri - Columbia, USA), Reid Viegut (University of Missouri - Columbia, USA) and Yi Shang (University of Missouri - Columbia, USA)

### CIC Vision Session 3:

8:30am-10:30am

Zoom Link: <https://us06web.zoom.us/j/83324862663?pwd=am8wODB2eFJiOHB4disrdVhDaU5ZZz09>

Session Chair: **James Joshi, University of Pittsburgh, USA**

- **Cognitive Architectures and their Applications**  
Christian Lebiere (Carnegie Mellon University, USA), Edward Cranford (Carnegie Mellon University, USA), Michael Martin (Carnegie Mellon University, USA) and Don Morrison (Carnegie Mellon University, USA)
- **Human-Machine Collaboration for Smart Decision Making: Current Trends and Future Opportunities**  
Baocheng Geng (University of Alabama at Birmingham, USA) and Pramod Varshney (Syracuse University, USA)
- **Semantic Communications: A Paradigm Whose Time Has Come**  
Emrehan Kutay (The Ohio State University, USA) and Aylin Yener (The Ohio State University, USA)

### TPS Special Session on AI Security:

8:30am-9:30am

Zoom Link: <https://us06web.zoom.us/j/81963420282?pwd=R3BLQWdwa1dyeIV6Vmk5YUxyMEZMdz09>

Session Chair: **Danda Rawat**

- **Dynamic defenses and the transferability of adversarial examples**  
Sam Thomas, Farnoosh Koleini and Nasseh Tabrizi
- **Understanding Model Extraction Games**  
Xun Xian, Mingyi Hong and Jie Ding





## TPS Special Session - Blockchain:

9:30am-10:30am

Zoom Link: <https://us06web.zoom.us/j/81455167138?pwd=emRudzcwVVEySjJsYTFTWlBTZ2RqZz09>

Session Chair: **Jaideep Vaidya**

- **Towards faster settlement in HTLC-based Cross-Chain Atomic Swaps**  
Subhra Mazumdar
- **Last Mile of Blockchains: RPC and Node-as-a-service**  
Zhongtang Luo, Rohan Murukutla, Aniket Kate

## Coffee Break (10 min)

## Keynote 5

10:40 am-11:40 am

Zoom Link: <https://us06web.zoom.us/j/88975133670?pwd=NWxnNDJrOEVWc2NmdUZEQm9jMHhvQT09>

Session Chair: **Ling Liu, Georgia Institute of Technology, USA**

### The Persistent Problem of Software Insecurity

**Elisa Bertino, Purdue University, USA**

## Lunch Break (30 min)

## Keynote 6

12:10 pm-1:10 pm

Zoom Link: <https://us06web.zoom.us/j/86959644365?pwd=UEpPL2Z4aGw3SnFRVStxVzNEM20wdz09>

Session Chair: **Mei-Ling Shyu, University of Missouri-Kansas City, USA**

### Using AI to understand molecular patterns in human health and disease

**Guruduth Banava**

*Founding CTO, Viome, USA*

## Coffee Break (10 min)





## TPS Research Session 5:

1:20pm-3:20pm

Zoom Link: <https://us06web.zoom.us/j/81797987886?pwd=VUxWVkrIQ0hHSUFQcmF3LytNaFk4Zz09>

Session Chair: [Liyue Fan](#)

- **Secure and Efficient Privacy-preserving Authentication Scheme using Cuckoo Filter in Remote Patient Monitoring Network**  
Shafika Showkat Moni (Montclair State University, USA) and Deepti Gupta (University of Texas at San Antonio, USA)
- **Scenario-Driven Device-to-Device Access Control in Smart Home IoT**  
Mehrnoosh Shakarami (University of Texas at San Antonio, USA), James Benson (University of Texas at San Antonio, USA) and Ravi Sandhu (University of Texas at San Antonio, USA)
- **Harpocrates: Privacy-Preserving and Immutable Audit Log for Sensitive Data Operations**  
Mohit Bhasi Thazhath (Virginia Tech, USA), Jan Michalak (Virginia Tech, USA) and Thang Hoang (Virginia Tech, USA)
- **Adaptive Control for Security and Resilience of Networked Cyber-Physical Systems: Where Are We?**  
Talal Halabi (Laval University, Canada), Israat Haque (Dalhousie University, Canada) and Hadis Karimipour (University of Calgary, Canada)

## CogMI Vision Session 3:

1:20pm-3:20pm

Zoom Link: <https://us06web.zoom.us/j/83658513971?pwd=TEJWcU8yRGZJN0hnbHBmTWlmcEFXZz09>

Session Chair: [Ricardo Baeza-Yates, IEAI at Northeastern University, USA; Universitat Pompeu Fabra, Spain; Universidad de Chile, Chile](#)

- **A Novel Approach for Unsupervised Learning of Highly-Imbalanced Data**  
Robert Kennedy (Florida Atlantic University, USA), Zahra Salekshahrezaee (Florida Atlantic University, USA) and Taghi Khoshgoftaar (Florida Atlantic University, USA)
- **PSLotto: A Privacy-Enhanced COVID Lottery System**  
Stacey Truex (Denison University, USA) and Giorgi Alavidze (Denison University, USA)
- **Collaboration, Self-Reflection, and Adaptation in Robot Communities: Using Multi-Agent Distributed Learning for Coordination Planning**  
Javed Mostafa and Weimao Ke

## TPS Research Session 6:

1:20pm-3:20pm

Zoom Link: <https://us06web.zoom.us/j/87545694711?pwd=eIN3Q2NNUmILRGJwK05rT0pXazIPUT09>





Session Chair: **Ravi Mukkamala**

- **ZAC: Efficient Zero-Knowledge Dynamic Universal Accumulator and Application to Zero-Knowledge Elementary Database**  
Hai-Van Dang (University of Plymouth, UK), Tran Phuong (Old Dominion University, USA), Thuc Nguyen (University of Science - VNU-HCM, Vietnam) and Thang Hoang (Virginia Tech, USA)
- **What Makefile? Detecting Compiler Information Without Source Using The Code Property Graph**  
Sean Deaton (Blue Star Inc., USA)
- **ProProv: A Language and Graphical Tool for Specifying Data Provenance Policies**  
Kevin Dennis (University of South Florida, USA), Shamaria Engram (MIT, USA), Tyler Kaczmarek (MIT, USA) and Jay Ligatti (University of South Florida, USA)

## Coffee Break (10 min)

### Panel 3

3:30pm–5:00pm

Zoom Link: <https://us06web.zoom.us/j/89538445569?pwd=ZVhtdFB5dlQwd1BGd2hCOHFReGZ1UT09>

### Robust and Fair AI

Moderator: **Aidong Zhang, University of Virginia, USA**

#### Panelists

- **Emily Black**, Stanford University, USA
- **Thomas Dietterich**, Oregon State University, USA
- **Xia Hu**, Rice University, USA
- **Kush Varshney**, IBM

### Best Paper Awards and Closing Remarks

5:00 pm – 5:30 pm

Zoom Link:

<https://us06web.zoom.us/j/81807078365?pwd=UW9NdW5Za2JzU2ZWZ0dQRWdmT29OQT09>

Session Chairs: **TBD**





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